

# LIE GROUPS AND LIE ALGEBRAS, MATH 229A

RAPHAËL ROUQUIER

*Fall 2024*

MWF 9-9:50am, MS 5118

This course will give an introduction to the classical theory of Lie groups and Lie algebras.

Topics to be discussed:

- Topological groups
- Lie groups
- Lie algebras (nilpotent, solvable, semi-simple), enveloping algebras
- Correspondence between Lie groups and Lie algebras

## References

D.Huybrechts, "Complex Geometry", Springer Verlag, 2005.

J.Faraut, "Analysis on Lie Groups. An introduction", Cambridge University Press, 2008

J.-P.Serre, "Lie algebras and Lie groups", Lecture Notes in Mathematics 1500, Springer Verlag, 1992

**Office hours** MW 10am-10:50am or by appointment.

## Grading

The course assessment will be based on the write-up of an assigned project. The write-ups (up to 10 pages) will be due on December 4.

A list of possible projects will be provided on Monday October 21 and a preferred choice, as well as a second and third choice, will need to be sent to me by email by Wednesday October 23. You may also suggest your own topic, which I will need to approve.

An abstract of what you plan to do for your write-up will be due on Monday November 4.